California Energy Commission
Public Interest Energy Research (PIER) Program
Environmental Research Area

Climate Analysis, Monitoring, and Modeling

Research Powers the Future
PIER Environmental Research
www.energy.ca.gov/research/environmental

August 2012

Fact Sheet

The Issue

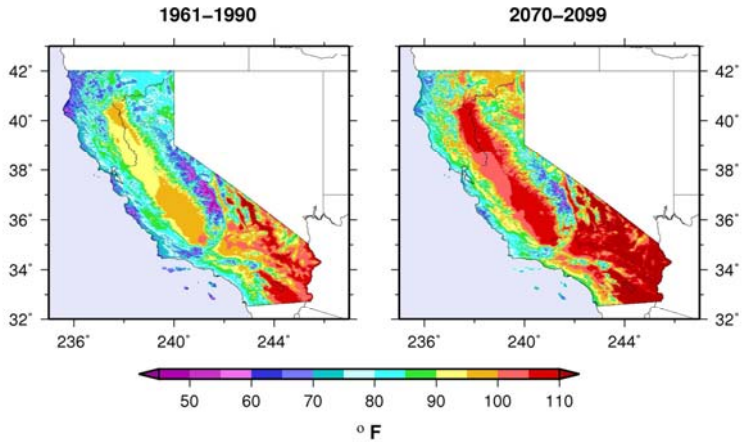
Climate change is a daunting challenge facing California, with projected impacts reaching every sector of the state's economy and public health. The energy sector will not be spared. The potential repercussions of climate change include reduced snowfall in the Sierra Nevada Mountains, rapid melting of the snowpack, more intense and more frequent heat waves, increased energy consumption, reduced hydropower generation in the summer season, an increase in forest fire frequency, and accelerated sea level rise. To prepare for these impacts, California is monitoring how the climate is changing in the state, installing meteorological and hydrological monitoring stations, and improving the projections on future climate change.

Climate change will substantially affect energy generation, transmission, and demand, yet better information is needed to assess more specifically how it is changing and how it may evolve for the rest of the 21st century. The standardization and distribution of the existing large quantity of data and modeling results are not only needed to advise policy and planning now, but are invaluable resources for the future in guiding decision-making. This project continues the state's climate monitoring and analysis program.

Project Description

This project includes the following activities:

- Install additional meteorological and hydrological monitoring stations and maintain and improve current stations to track of how climate is changing in California.
- Investigate hydrological modeling uncertainty to study how climate change may impact hydropower



July daytime temperature from projected end of 21st century climate simulation (right) vs. observed (left) shows how global climate change may intensify summer warming over California.
Source: Dan Cayan, Scripps Institution of Oceanography, UC San Diego

- Maintain and continue development of the California Climate Data Archive, a website containing historical meteorological and hydrological data dating back ~100 years.
- Update and maintain the California Climate Change Tracker – a part of the California Climate Data Archive – once a month to report how climate is changing in different regions of the state.
- Analyze outputs from different global climate models to determine how well these models: 1) simulate conditions conducive to high flows and flooding events, and 2) estimate biases in climate projections for the 21st century.
- Provide analyses and interpretation of regional climate change in support of California climate change assessments and other California activities.

PIER Program Objectives and Anticipated Benefits for California

Climate change will substantially affect energy generation and demand. Phase IV of this research program combines climate monitoring, analyses, and modeling to estimate how California's climate is changing. This regional climate research will provide technical and analytical support for developing climate scenarios vital for short- and long-term planning. This project will help California's energy sector transition in response to climate change and limit impacts on the state's energy infrastructure, helping to provide stable, secure, and uninterrupted sources of energy to California's residents.

Project Specifics

Contract Number: 500-09-025
Contractor: Scripps Institution of Oceanography, UC San Diego
City/County: La Jolla/San Diego County
Application: Statewide
Amount: $1,100,000
Term: March 2010 to September 2012

For more information, please contact:

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